APPENDIX D to East Reserve Project ROD

U.S. Fish and Wildlife Service Biological Opinion

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Twin Cities Field Office
4101 East 80th Street
Bloomington, Minnesota 55425-1665

TAKE PRIDE IN AMERICA

IN REPLY REFER TO:
FWS/AFWE-TCFO

FEB 2 1 2007

Mr. Robert J. Whiting
Chief, Regulatory Branch
Department of the Army
St. Paul District, Corps of Engineers
190 Fifth Street East, Suite 401
St. Paul, Minnesota 55101-1638

Dear Mr. Whiting:

Please find enclosed U.S. Fish and Wildlife Service's (Service) biological opinion regarding the effects of the proposed issuance of a Clean Water Act Section 404 permit to Mittal Steel to develop a new open-pit mine (East Reserve) between the towns of Biwabik and McKinley, St. Louis, County, Minnesota on the gray wolf (*Canis lupus*) and Canada Lynx (*Lynx canadensis*). The Service received your February 9, 2007 letter requesting initiation of formal section 7 consultation under the Endangered Species Act on February 12, 2007.

In the enclosed biological opinion, the Service has concluded that the proposed action will not jeopardize the continued existence of the gray wolf or Canada lynx, but includes terms and conditions to reduce the anticipated take of these species. For further coordination regarding implementation of the Terms and Conditions, please contact Paul Burke at (612) 725-3548 ext. 205.

Sincerely,

Tony Sullins

Tony Sullins
Field Supervisor

cc: Scott Ek, Minnesota Department of Natural Resources, St. Paul

BIOLOGICAL OPINION
MITTAL STEEL USA – MINORCA MINE, INC.
EAST RESERVE PROJECT
U.S. ARMY CORPS OF ENGINEERS

February 20, 2007
U.S. FISH AND WILDLIFE SERVICE
TWIN CITIES FIELD OFFICE
BLOOMINGTON, MINNESOTA

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Introduction and Consultation History

This document transmits the Fish and Wildlife Service's (Service) Biological Opinion (Opinion) based on our review of the proposed issuance of a Clean Water Act Section 404 permit to Mittal Steel to develop a new open-pit mine (East Reserve) between the towns of Biwabik and McKinley, St. Louis, County, Minnesota.

Minnesota Department of Natural Resources and the U.S. Army Corps of Engineers (USACE) jointly released a Draft Environmental Impact Statement (EIS), Mittal Steel USA - Minorca Mine East Reserve Project, on September 15, 2006. The Final EIS was released on December 22, 2006. On December 22, 2006, USACE sent a letter to the Service in which it requested the Service's concurrence with the determination that the proposed action may affect, but would not likely adversely affect Canada lynx (*Lynx canadensis*) and gray wolf (*Canis lupus*). On January 25, 2007, the Service met with USACE to discuss the proposed project and potential effects to federally listed species. Subsequently, the Service sent a letter to USACE on January 30, 2007, stating several reasons why the proposed action was likely to adversely affect both gray wolves and Canada lynx. USACE then sent a letter to the Service on February 9, 2007, in which it requested the initiation of formal section 7 consultation with the Service. Additional conversations between the two agencies are documented in electronic mail messages. A complete record of this consultation is on file at the Service's Twin Cities Field Office.

Concurrence

The USACE found that the proposed action may affect, but is not likely to adversely affect bald eagle (*Haliaeetus leucocephalus*). In Minnesota, bald eagles typically nest in large trees within 500 feet of lakes or rivers (Grier & Guinn 2003). Activities that occur within one-quarter to two miles of nests (i.e., the outer limit of the tertiary zone, USFWS , depending on sight lines, may have adverse effects on breeding eagles. The nearest recorded bald eagle nest territory is approximately two miles from the action area. It is on the opposite side of Minnesota Highway 135, which has an average daily traffic volume of 5100 vehicles/day (Minnesota Department of Transportation 2004. Traffic volume maps. Retrieved 1/31/07 from http://www.dot.state.mn.us/tda/maps/trunkhighway/2004/counties/stlouis4.pdf). Due to the distance of this nesting territory from the proposed mine and the current existence of a state highway between the two areas the Service would not expect the proposed action to adversely affect eagles nesting in this territory.

Eagles may establish a new nesting territory in forest near open bodies of water or along the Pike River within two miles of the proposed mine or haul road.

The open bodies of water within this area, however, are predominantly former mine pits. Therefore, the Pike River and two natural lakes that are about 1.4 miles from the proposed pit boundary may be the most likely locations for new eagle territories in or near the action area. If eagles nest near either lake, their nests would have to in direct line of sight with the pit or stockpile areas to expect any effects to nesting eagles due to the distance between the two. No eagle nests are recorded along any portion of the Pike River between the action area and Lake Vermillion. In addition, except for the haul road, most of the proposed activities would occur greater than one-half mile from the river and may be partly or entirely out of the line of sight of potential nesting areas near the river. Based on these factors, we concur with the USACE determination that the proposed action may affect, but is unlikely to adversely affect bald eagles.

BIOLOGICAL OPINION

1. Description of the Proposed Action

The U.S. Army Corps of Engineers (USACE) has proposed to issue a Clean Water Act Section 404 permit to Mittal Steel to develop a new open-pit mine (East Reserve) between the towns of Biwabik and McKinley, St. Louis, County, Minnesota. The East Pits and stockpile areas will both impact wetlands [Minnesota Department of Natural Resources (MDNR) and USACE 2006:17-18 and Figure 3-7). Therefore, a Clean Water Act Section 404 permit from the USACE would be required to implement the mining proposal. Proposed actions related to mining would be interrelated to the USACE action – they would not occur but for the issuance of the CWA permit and are described below in section 5.1, Effects of Interrelated or Interdependent Actions.

2. Status of the Species

2.1. Canada lynx

The Canada lynx in the contiguous U.S. were listed as threatened effective April 23, 2000 [65 Federal Register (FR) 16052, March 24, 2000]. The Service identified one distinct population segment (DPS) in the lower 48 states. On July 3, 2003, the Service published its Notice of Remanded Determination of Status for the Contiguous United States Distinct Population Segment of the Canada Lynx (68 Federal Register FR 40076, July 3, 2003) in which it clarified its findings in the 2000 final listing rule and reaffirmed the listing of the lynx DPS as threatened.

2.1.1. Species Description

The lynx is a medium-sized cat with long legs; large, well-furred paws; long tufts on the ears; and a short tail whose tip is entirely surrounded by black (McCord and Cardoza 1982, the tips of bobcat tails are black only on the upperside). The lynx's long legs and large, well-furred paws make it highly adapted for hunting in deep snow. Adult males average 10 kilograms (22 pounds) in weight and 85 centimeters (33.5 inches) in length (head to tail), and females average 8.5 kilograms (19 pounds) and 82 centimeters (32 inches, Quinn and Parker 1987).

2.1.2. Life History

Canada lynx prey primarily on snowshoe hares, especially in the winter when they comprise 35-97 percent of the diet (Koehler and Aubry 1994). Lynx may modify hunting behavior and switch to alternate prey when hare densities are low (O'Donoghue et al. 1998). Other prey species include red squirrel

(*Tamiasciurus hudsonicus*), other small rodents, small carnivores, and birds, including ruffed grouse (Moen et al. 2004).

Snowshoe hares have evolved to survive in areas that receive deep snow (Bittner and Rongstad 1982) and prefer conifer habitats with dense shrub understories that provide food, abundant cover to escape predators, and thermal protection during extreme weather (Wolfe et al. 1982; Pietz & Tester 1983; Fuller & Heisey 1986; Monthey 1986; Koehler and Aubrey 1994; Wirsing et al. 2002; Hodges & Sinclair 2005). Early successional forest stages generally have greater understory structure than do mature forests and therefore support higher hare densities (Pietz & Tester 1983; Newbury & Simon 2005). It may take several years, however, for conditions to become suitable for hares after disturbances, such as clearcuts and fire; such areas may not be optimal until 15-30 years after the initial disturbance, during what may be described as the sapling/large shrub stage – before the onset of self-thinning (Monthey 1986; Thompson et al. 1989; Koehler and Brittell 1990; Buskirk et al. 2000; Hoving et al. 2004). In central Labrador, for example, hare densities peaked thirty years after clearcuts – hare densities in 30-year-old clearcuts were 37 times higher than in recent clearcuts (Newbury & Simon 2005). Potvin et al. (2005) found that hare densities would likely peak no sooner than 15 years after clearcuts in southwestern Quebec and that optimal conditions took longer to develop in some boreal forest types (e.g., black spruce, *Picea mariana*). Peak densities may develop sooner in more southern forests (Newbury & Simon 2005; Potvin et al. 2005).

In Canada and Alaska, lynx populations generally undergo marked and regular fluctuations in response to changes in snowshoe hare populations (Mowat et al. 2000). In the northern portions of their range, lynx densities drop to less than $3/100km^2$ during population lows. A well studied population in Washington maintained a density of $2\text{-}2.6/100km^2$ during a 7-year study period (Aubry et al. 2000).

In the northeastern U.S., lynx were most likely to occur in areas containing suitable habitat that were greater than 100 square kilometers (km^2, Hoving 2001). Studies in the southern portion of the species' range have found average home ranges of 151 km^2 and 72 km^2 for males and females, respectively (Aubry et al. 2000). Home range size is likely inversely related to density of snowshoe hare (Koehler and Aubry 1994; Poole 1994; Apps 2000; Squires and Laurion 2000).

The most commonly reported causes of lynx mortality include starvation of kittens (Quinn and Parker 1987; Koehler 1990) and human-caused mortality (Ward and Krebs 1985; Bailey et al. 1986). Significant lynx mortality due to starvation (up to two-thirds of deaths) has been demonstrated in cyclic populations of the northern taiga during the first 2 years of hare scarcity (Poole 1994; Slough and Mowat 1996). Where trapping of lynx occurs legally, mortality of adults may be almost entirely human-caused during hare population lows (Poole 1994). Lynx are also killed by automobiles, disease, and other mammal species, although the significance of these factors to lynx populations is uncertain (Brand and Keith 1979; Carbyn and Patriquin 1983; T. Shenk, *in litt.* 2004; Ward and Krebs 1985; Bailey et al. 1986). During a lynx irruption in Minnesota in 1971-1974 when the state allowed take by trappers, 96 percent of 128 mortalities were caused by trapping or shooting, whereas 4 percent were killed by cars (Henderson 1977). Of the 37 lynx that have died of known or suspected causes in Colorado since the state began reintroducing the species in 1999, 13 (35 percent) died as a result of being shot or from other human causes (excluding vehicles), ten (27 percent) were killed by vehicles, nine (24 percent) starved, four (11 percent) died of plague, and 1 (3 percent) was predated (T. Shenk, *in litt.* 2004). Of the 21 lynx mortalities recorded in Minnesota since 2002, six died after being trapped, five died as a result of collisions with cars, four died of unknown causes, three were shot, two died after collisions with trains, and one was predated.

2.1.3. Status and Distribution

Canada lynx range is associated closely with the distribution of North American boreal forest inhabited by snowshoe hares (Agee 2000). It extends from Alaska, the Yukon Territories, and Northwest Territories south across the United States border in the Cascades Range and northern Rocky Mountains, through the central Canada provinces and down into the western Great Lakes region, and east to New Brunswick and Nova Scotia, Canada, and south into the northeastern United States from Maine to New York (McCord and Cardoza 1982; Quinn and Parker 1987).

Within the transitional boreal forest within the contiguous United States there are core areas for Canada lynx in Maine, Minnesota, Montana, Washington and likely Idaho (68 Federal Register 40076-40101, July 3, 2003). More generally, these core areas are contained within the Northeast, Great Lakes, Southern Rocky Mountains, and Northern Rocky Mountains/Cascades regions. Status of Canada lynx in the Minnesota/Great Lakes region is summarized below. Outside of Minnesota in the Great Lakes region, lynx may also occur in Wisconsin and Michigan, but there is no current evidence of reproduction there and suitable habitat is limited and disjunct from occupied habitat in Minnesota and Canada (68 Federal Register 40076-40101, July 3, 2003).

2.1.3.1. Minnesota/Western Great Lakes Region

In Minnesota, recent and historical lynx records are primarily in the northeastern part of the state, especially in the Northern Superior Uplands Ecological Section. Historically, this area was dominated by red pine (*Pinus resinosa*) and white pine (*P. strobus*) mixed with aspen (*Populus spp.*), paper birch (*Betula papyrifera*), spruce, balsam fir (*A. balsamifera*) and jack pine (*P.*

banksiana) (Minnesota Department of Natural Resources [Minnesota DNR] 2003). Unlike elsewhere within the Great Lakes and Northeast regions, most lynx habitat in northeastern Minnesota is on public lands, particularly the Superior National Forest. Mixed deciduous-boreal forest suitable for lynx habitat encompasses most of the Superior National Forest, which has been mapped into Lynx Analysis Units to promote lynx management under the SNF Land and Resource Management Plan (USDA Forest Service 2004).

Harvest and bounty records for Minnesota, which are available since 1930, indicate approximate 10-year population cycles, with highs in 1940, 1952, 1962, and 1973 (Henderson 1977; McKelvey et al. 2000). Lynx abundance in Minnesota appears to be directly related to population levels in nearby Canada (Mech 1980) – based on trapping records, lynx abundance in Minnesota appears to lag fluctuations in Manitoba, Ontario, and Saskatchewan by about three years (McKelvey et al. 2000). During a 47-year period (1930–1976) before cessation of legal harvest, the Minnesota lynx harvest ranged from 0 to 400 per year (Henderson 1977) and lynx were captured in the state through periods presumed to represent both population highs and lows.

In the 1990s there were only five verified records of lynx in Minnesota (M. Don Carlos, Minnesota Department of Natural Resources, in litt. 1994; S. Loch, pers. comm. 2006). Beginning in about 2000, Minnesota lynx numbers evidently began to rebound. Genetic analyses of scat and hair samples collected primarily along lynx snow trails and tissue samples from dead specimens as well as live-captured lynx have confirmed presence of 81 unique lynx and 4 lynx-bobcat hybrids in Minnesota from 2002 through March 2006 (USDA FS, unpubl. data). An additional 18 lynx have been documented as part of an ongoing lynx study (S. Loch, pers. comm. 2006) for a total of at least 99 unique lynx confirmed in the state since 2002. This number represents only a subset of the actual number of lynx that have been present in the state since 2002, which is unknown. Lynx researchers have confirmed nine lynx dens in Minnesota by following the activities of radio-collared females in the years 2004-2006 (R. Moen, Natural Resources Research Institute, Duluth, MN, pers. comm. 2006).

Snowshoe hare harvest in Minnesota (the only available long-term index to hare abundance in the state) shows a very inconsistent pattern from 1941-2000. Hare abundance, as indicated by harvest, peaked in the early 1940s and 1950s along with lynx harvest, but not in the early 1950s or 1960s. In contrast, hare harvest was double any previous year from 1977-1980, yet lynx did not increase. Based on counts of hares made during spring grouse drumming surveys and mid-winter furbearer track surveys, snowshoe hare numbers are currently "near a peak", but remain far below the numbers observed in the late 1970's (J. Erb, Minnesota Department of Natural Resources, *in litt.* 2004).

Canada lynx may not be legally trapped in Minnesota, where they are a protected species, but at least thirteen lynx have been captured incidentally in recent years by trappers in pursuit of other species – five of these lynx died as a result (U.S. Fish and Wildlife Service (USFWS), Bloomington, Minnesota, unpubl. data).

In previous biological opinions for federal actions that are ongoing in Minnesota, the Service anticipated various levels of take. These anticipated levels of take are described below, along with the actual recorded take that may be ascribed to each action. The Service monitors all known take and mortality of lynx in Minnesota in cooperation with the Forest Service.

- 2004 - Up to two lynx per year, but no more than 20 in total, over the 15 years after the approval of the Revised Land and Resource Management Plans, Chippewa and Superior National Forests. These plans were approved in July 2004. Thus, the Service has anticipated that this take would occur between July 2004 and July 2019. Thus far, only one incidental take may be ascribed to the Forest Service's implementations of these plans – a lynx was killed by an automobile in April 2005 on the Superior National Forest.

- 2005 - Trunk Highway 371 North, Federal Highway Administration – One over a 30 year period (2005-2035). Thus far, no take may be ascribed to this action.

- 2005 - Trunk Highway 1, Federal Highway Administration – Up to three lynx, over a 30 year period (2005-2035). Thus far, no take may be ascribed to this action.

- 2006 - Clean Water Act permit for the discharge of dredged or fill material into navigable waters by Northshore Mine, U.S. Army Corps of Engineers – One lynx during the ten year project period (2006-2015). Thus far, no take may be ascribed to this action.

- 2006 - Paving of Forest Road 424 (Denley Road) in St. Louis and Lake Counties, Minnesota – One lynx every 10 years. Thus far, no take may be ascribed to this action.

Collectively, we anticipate that these actions would result in the take of approximately 2 lynx per year within their combined action areas in Minnesota, although there is evidence for the take of only one lynx as a result of all of these actions. In addition, during the approximately five years during which the Service has collected lynx mortality data in Minnesota it has recorded the deaths of sixteen lynx due to human causes (one of these was anticipated by a biological opinion).

2.1.3.2. Northeast

As it did historically, the boreal forest of the Northeast currently exists primarily in Maine where habitat is currently optimal and a resident, breeding population of lynx occurs. Maine's lynx population is directly connected to substantive lynx populations and habitat in southeastern Quebec and New Brunswick. Lynx numbers in Maine apparently increased between 1999 and 2003, coinciding with regeneration of forest clearcut in the 1970's and 1980's and high numbers of lynx in nearby Quebec (Hoving et al. 2004). The potential exists for lynx to occur in New Hampshire because of its direct connectivity with Maine, and we presume they currently occur there. Lynx in Vermont have always existed solely as dispersers. Lynx occurring in New York since 1900 have been dispersers.

2.1.3.3. Northern Rocky Mountains/Cascades

In this region, the majority of lynx occurrences are associated at a broad scale with the "Rocky Mountain Conifer Forest;" within this type, most of the occurrences are in moist Douglas fir (*Pseudotsuga menziesii*) and western spruce/fir forests (McKelvey et al. 2000). Most of the lynx occurrences are in the 1,500-2,000 meters (4,920-6,560 feet) elevation class (McKelvey et al. 2000). These habitats are found in the Rocky Mountains of Montana, Idaho, eastern Washington, and Utah, the Wallowa Mountains and Blue Mountains of southeast Washington and northeastern Oregon, and the Cascade Mountains in Washington and Oregon. A substantial proportion of the verified lynx occurrences in the United States and confirmed breeding are from this region. The boreal forest of Washington, Montana, and Idaho is contiguous with that in adjacent British Columbia and Alberta, Canada.

The Northern Rocky Mountains/Cascades Region supports the most viable resident lynx populations in the contiguous United States, while recognizing that, at best, lynx in the contiguous United States are naturally rare. Strong evidence exists to support the presence of resident lynx populations distributed throughout much of the forest types considered lynx habitat in Montana and Washington. Resident lynx populations probably exist in contiguous habitats in Idaho and northwestern Wyoming. Lynx have probably always occurred intermittently in Oregon and Utah, although the historical or current presence of resident populations in either of these States has not been confirmed.

2.1.3.4. Southern Rocky Mountains

It is unclear whether lynx in this region historically occurred as a resident population or if historic records were of periodic dispersers. If a resident lynx population occurred historically in the Southern Rocky Mountains, then this native population has been lost. Isolation from potential source populations may have led to the extirpation of lynx in this region. Although habitats in the

Southern Rockies are far from source populations and more isolated, it is still possible that dispersers could arrive in the Southern Rocky Mountains during highs in the population cycle.

Colorado Division of Wildlife (CDOW) has released 218 lynx from Canada and Alaska in 1999, 2000, 2003, 2004, 2005, and 2006. As of August 2004, CDOW was tracking 85 of the released animals and had confirmed 56 mortalities. Researchers found six litters containing 16 kittens in 2003; 14 litters and 39 kittens in 2004; 18 litters with 50 kittens in 2005; and four litters containing 11 kittens in 2006. Although total litters found were down in 2006, CDOW documented the first litter produced by a female that was previously born in Colorado. CDOW biologists reportedly estimate that there are currently about 200 lynx in Colorado (http://wildlife.state.co.us/NewsMedia/PressReleases/Press.asp?PressId=3993 accessed 8/23/06). Den sites have been scattered throughout Colorado and one den was in southern Wyoming (T. Shenk, in litt. 2004).

2.2. Gray wolf

Gray wolf populations in the United States are currently protected under the Act as a threatened species in Minnesota and endangered in the remaining 47 conterminous states and Mexico (50 CFR 17.11(h)). Within this broad area, there are separate regulations establishing non-essential experimental populations in the Northern Rocky Mountains and for the Mexican wolf (*C. lupus baileyi*) in Arizona and New Mexico (50 CFR 17.84(i), (k), and (n)).

On March 27, 2006, the Service published a proposed rule to establish the Western Great Lakes Distinct Population Segment (WGL DPS) of the gray wolf, which would include all of Minnesota, Wisconsin, and Michigan. At that time the Service further proposed to remove this DPS from the List of Endangered and Threatened Wildlife. The final rule to remove wolves in this DPS was published in the Federal Register on February 8, 2007, but will not go into effect until March 12, 2007.

2.2.1. Species Description

Gray wolves are the largest wild members of the Canidae, or dog family, with adults ranging from 18 to 80 kilograms (kg) (40 to 175 pounds (lb)) depending upon sex and subspecies (Mech 1974). The average weight of male wolves in Wisconsin is 35 kg (77 lb) and ranges from 26 to 46 kg (57 to 102 lb), while females average 28 kg (62 lb) and range from 21 to 34 kg (46 to 75 lb) (Wisconsin Department of Natural Resources (WI DNR) 1999). Wolves' fur color is frequently a grizzled gray, but it can vary from pure white to coal black. Wolves may appear similar to coyotes (*C. latrans*) and some domestic dog breeds (such as the German shepherd or Siberian husky) (*C. familiaris*). Wolves' longer legs, larger feet, wider head and snout, and straight tail distinguish them from both coyotes and dogs.

2.2.2. Life History

Wolves primarily are predators of medium and large mammals. Wild prey species in Minnesota include white-tailed deer (*Odocoileus virginianus*), moose (*Alces alces*), beaver (*Castor canadensis*), snowshoe hare (*Lepus americanus*), and muskrat (*Ondatra zibethicus*), with small mammals, birds, and large invertebrates sometimes being taken (Chavez and Gese 2005, Mech 1974, Stebler 1944, WI DNR 1999, Huntzinger et al. 2005).

Wolves are social animals, normally living in packs of 2 to 12 wolves. Winter pack size in Michigan's Upper Peninsula (UP) averaged from 2.7 to 4.6 wolves during the 1995 through 2005 period and ranged from 2 to 14 wolves per pack (Huntzinger et al. 2005). Pack size in Wisconsin is similar, averaging 3.8 to 4.1 wolves per pack, and ranging from 2 to 11 wolves in winter 2004– 2005 (Wydeven and Wiedenhoeft 2005). In Minnesota the average pack size found in the 1988–89, 1997–98, and 2003–2004 winter surveys was higher – 5.6, 5.4, and 5.3 wolves per pack, respectively (Erb and Benson 2004).

Packs are primarily family groups consisting of a breeding pair, their pups from the current year, offspring from one or two previous years, and occasionally an unrelated wolf. Packs typically occupy, and defend from other packs and individual wolves, a territory of 50 to 550 square kilometers (km^2) (20 to 214 square miles (mi^2)). Midwest wolf packs tend to occupy territories on the lower end of this size range. Michigan Upper Peninsula territories averaged 267 km^2 in 2000–2001 (Drummer et al. 2002), Wisconsin territories 37 mi^2 in 2004–2005 (Wydeven and Wiedenhoeft 2005), and Minnesota territory size averaged 102 km^2 in 2003–2004 (Erb and Benson 2004). Litters range from 1 to 11 pups, but generally include 4 to 6 pups. Normally a pack has a single litter annually, but the production of 2 or 3 litters in one year has been routinely documented in Yellowstone National Park (Smith et al. 2005).

2.2.3. Status and Distribution

2.2.3.1. Minnesota

Since 1997, Minnesota DNR has conducted two statewide surveys of wolf abundance and distribution. During these surveys, DNR queries staff of Federal, State, Tribal, and county land management agencies and wood products companies to identify occupied wolf range in Minnesota. DNR also uses data from radio telemetry studies representative of the entire Minnesota wolf range to determine average pack size and territory area. Those figures are then used to calculate a statewide estimate of wolf and pack numbers in the occupied range, with single (non-pack) wolves factored into the estimate (Erb and Benson 2004).

The 1997–98 survey indicated that approximately 2,445 wolves existed in about 385 packs in Minnesota during that winter (Berg and Benson 1999). This figure indicated that the Minnesota wolf population had grown at an average rate of about 3.7 percent annually from 1970 through 1997–98. Between 1979 and 1989 the annual growth rate was about 3 percent and it increased to between 4 and 5 percent in the next decade (Berg and Benson 1999; Fuller et al. 1992). As of the 1998 survey, the number of wolves in Minnesota was approximately twice the goal for Minnesota, as specified in the Eastern Recovery Plan (USFWS 1992). Minnesota DNR conducted another survey of the State's wolf population and range during the winter of 2003–04, using similar methodology. That survey concluded that an estimated 3,020 wolves in 485 packs occurred in Minnesota. The 90 percent confidence interval for this estimate encompassed a range of 2,301-3,708 wolves. Due to the wide overlap in the confidence intervals for the 1997–98 and 2003–04 surveys, there was no statistically significant increase in the State's wolf population during that period (Erb and Benson 2004).

As wolves increased in abundance in Minnesota, they also expanded their distribution. During 1948–53, the major wolf range was estimated to be about 11,954 sq mi (31,080 sq km) (Stenlund 1955) – about 14 percent of the state. As of 2003-2004, wolf range in Minnesota may have stabilized and now covers about 40 percent of the state (Erb and Benson 2004).

2.2.3.2. Wisconsin

Wisconsin DNR intensively surveys its wolf population annually using a combination of aerial, ground, and satellite radio telemetry, complemented by snow tracking and wolf sign surveys (Wydeven et al. 1995, 2005). Wolves are trapped from May through September and fitted with radio collars, with a goal of having at least one radio-collared wolf in about half of the wolf packs in Wisconsin. Snow tracking is used to supplement the information gained from aerial sightings and to provide pack size estimates for packs lacking a radio-collared wolf. Tracking is done by assigning survey blocks to trained trackers who then drive snow-covered roads in their blocks and follow all wolf tracks they encounter. The results of the aerial and ground surveys are carefully compared to properly separate packs and to avoid over-counting (Wydeven et al. 2003). The number of wolves in each pack is estimated based on the aerial and ground observations made of the individual wolves in each pack over the winter.

Based on these methods, Wisconsin DNR estimated that the state contained approximately 465 wolves in 108 packs in early 2005, representing a 14 percent increase from 2004 (Wydeven et al. 2005). Wisconsin wolf population estimates are conservative in two respects: they undercount lone wolves and the count is made at the annual low point of the population. This methodology is consistent with the recovery criteria established in the 1992 Recovery Plan, which established numerical criteria to be measured with data obtained by late-winter surveys. Wisconsin population estimates for 1985 through 2005 increased from 15 to 425–455 wolves (see Table 1 above) and from 4 to 108 packs (Wydeven et al. 2005). This represents an annual increase of 21 percent through 2000, and an average annual increase of 11 percent for the most recent five years.

2.2.3.3. Michigan

The MI DNR annually monitors the wolf population in the Upper Peninsula by intensive late-winter tracking surveys that focus on each pack. The Upper Peninsula is divided into seven monitoring zones, and specific surveyors are assigned to each zone. Pack locations are derived from previous surveys, citizen reports, and extensive ground and aerial tracking of radio-collared wolves. During the winter of 2004–05 at least 87 wolf packs were resident in the Upper Peninsula (Huntzinger et al. 2005). A minimum of 40 percent of these packs had members with active radio-tracking collars during the winter of 2004–05 (Huntzinger et al. 2005). Care is taken to avoid double-counting packs and individual wolves, and a variety of evidence is used to distinguish adjacent packs and accurately count their members. Surveys along the border of adjacent monitoring zones are coordinated to avoid double-counting of wolves and packs occupying those border areas. In areas with a high density of wolves, ground surveys by 4 to 6 surveyors with concurrent aerial tracking are used to accurately delineate territories of adjacent packs and count their members (Huntzinger et al. 2005, Potvin et al. 2005). As with Wisconsin, the Michigan surveys likely miss many lone wolves, thus underestimating the actual population.

Annual surveys have documented minimum late-winter estimates of wolves occurring in the Upper Peninsula as increasing from 57 wolves in 1994 to 405 in 87 packs in 2005. The rate of annual increase has varied from year to year during this period, but there appears to be two distinct phases of population growth, with relatively rapid growth (about 25 percent per year from 1997 through 2000) and slower growth (about 14 percent from 2000 to the present time). Similar to Wisconsin, this may indicate a slowing growth rate as the population increases, although the 2005 late-winter population was up 13 percent from the previous year's estimated population (Huntzinger et al. 2005).

The wolf population of Isle Royale National Park, Michigan, is not considered to be an important factor in the recovery or long-term survival of wolves in the WGL DPS. This small and isolated wolf population cannot make a significant numerical contribution to gray wolf recovery, although long-term research on this wolf population has added a great deal to our knowledge of the species. The wolf population on Isle Royale has ranged from 12 to 50 wolves since 1959, and was 30 wolves in the winter of 2004–05 (Peterson and Vucetich 2005).

2.2.3.4. Other Gray wolf Populations in the Lower 48 States

In the lower 48 states, 159 gray wolves also occur in northwest Montana, where they have naturally recovered as a result of dispersal from Canada, and in three nonessential experimental populations.[1] Two nonessential experimental populations in the Northern Rocky Mountains, one in the Yellowstone Ecosystem and one in Central Idaho now include about 1084 wolves. The nonessential experimental population of Mexican wolves includes about 59 individuals. For detailed description of the status of gray wolves in the Northern Rocky Mountains and of the Mexican wolf, see USFWS et al. (2006) and USFWS et al. (2005).

3. Analysis of the Species Likely to be Affected

As stated above, the USACE has concluded that the proposed action may affect and is likely to adversely affect gray wolf and Canada lynx. It also concluded that it may affect, but is not likely to adversely affect bald eagle. We concur with that determination above and do not address bald eagle in the rest of the biological opinion.

4. Environmental Baseline

Regulations implementing the Act (50 CFR §402.02) define the environmental baseline as the past and present impacts of all Federal, State, or private actions and other human activities in the action area. Also included in the environmental baseline are the anticipated impacts of all proposed Federal projects in the action area which have already undergone section 7 consultation, and the impacts of state and private actions which are contemporaneous with the consultations in progress. Such actions include, but are not limited to, previous timber harvests and other land management activities.

The action area includes the East Reserve site (pits and stockpiles), the new section of haul road, the existing road to the Minorca Processing Plant, and the processing plant itself and the existing tailings basins. This is the area that would be affected directly or indirectly by the proposed action.

4.1. Status of the Species in the Action Area

4.1.1. Canada lynx

The action area includes forested habitat that may be suitable for this species. No lynx surveys (e.g., track surveys) have been conducted in the action area, but it is within the general range of lynx in Minnesota based on recent lynx records

1 These population numbers were obtained from the Service's website, http://www.fws.gov/midwest/wolf/population/status-map.htm, accessed February 16, 2007.

(e.g., post-2000) and lynx have been confirmed within approximately 8-10 km of the action area. Approximately 70% of the site is currently covered by upland shrub or forest, habitats that are generally suitable for lynx. It is unclear what proportion of the site currently may contain important foraging habitat (regenerating or other forest containing high stem densities) or denning habitat (mature forest containing patches of substantial downfall). Although wetlands and grassland cover approximately 25% of the site and human disturbances (roads, etc.) cover an additional 5%, we will assume that the entire site is included within a male and female home range - lynx home ranges typically contain some proportion of unsuitable or avoided habitats.

4.1.2. Gray wolf

All of the primary mine site and most of the proposed new haul road are within a township that Erb and Benson (2004) modeled as being suitable for wolves (Fig. 1). Suitable townships were those where road density was < 0.7 km/km^2 and human density is < 4/km^2, or road density is < 0.5 km/km^2 and human density is < 8/km^2 (Erb and Benson 2004:2). In these areas low human and road densities are likely to result in few interactions with humans that would adversely affect wolves (shootings, removal for depredation control, collisions with automobiles, incidental trapping, etc.). These "occupied townships" serve as a general guide to the distribution of habitat likely suitable for resident wolves, but are not intended to delineate the precise distribution of wolves or wolf packs. For example, the towns of Hibbing and Chisolm are likely the basis for the general unsuitability of the townships on the west end of the action area, but wolves are likely to occur in the relatively undisturbed areas on either side of the existing haul road to the Minorca processing facility. The townships to the north of the mine area, however, appear to contain very low road and human densities (Fig. 1). Average territory size among four wolf packs recently studied in Minnesota was 102 km^2 – slightly larger than the area of a township (about 93 km^2). Given the proximity of areas with low road and human density, especially to the immediate north of the action area, it is likely that resident wolves occur in the action area.

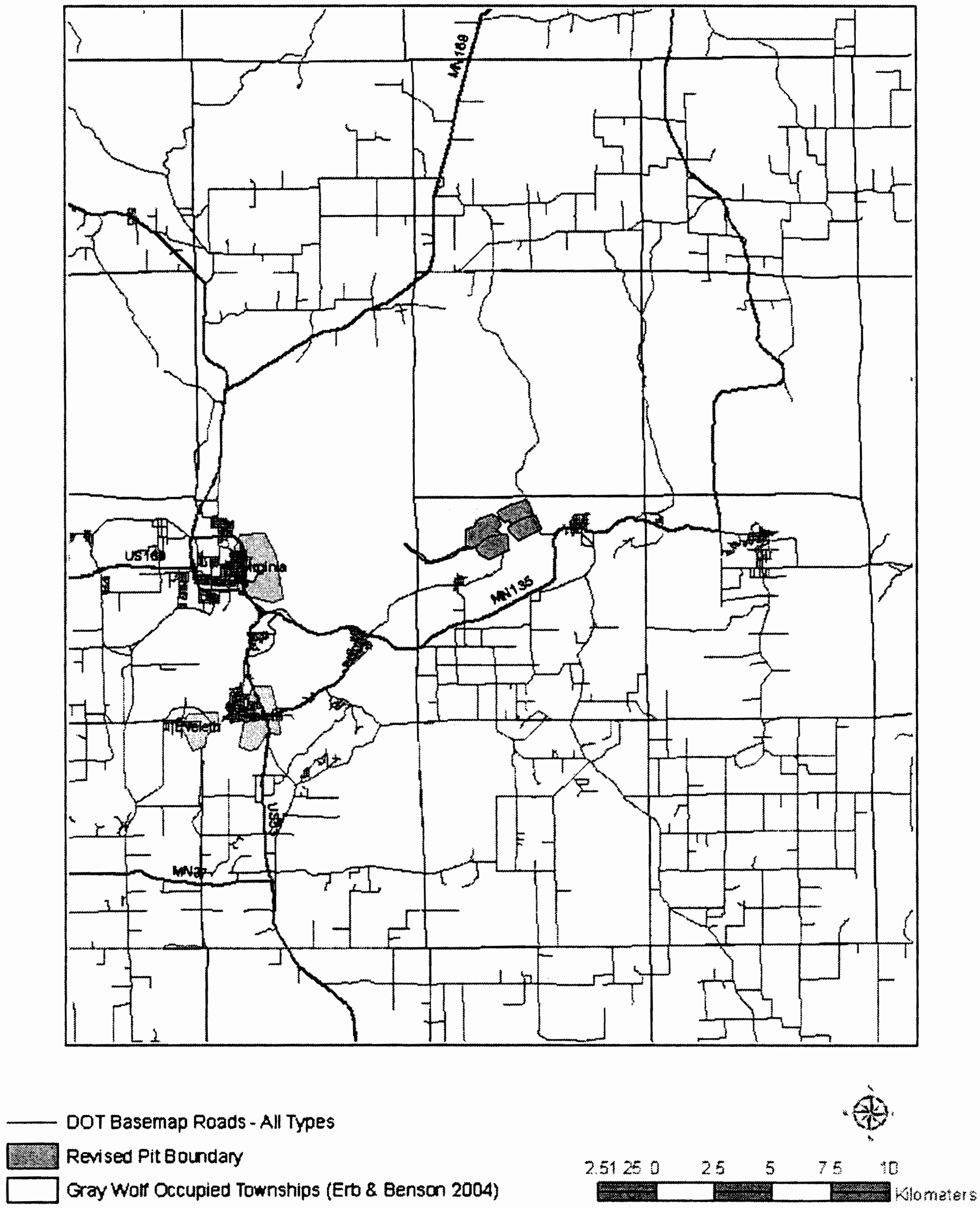

Figure 1. Location of the proposed East Reserve mine and new haul road spur relative to townships identified as suitable for gray wolves. See text for explanation of what constitutes a suitable township for gray wolves in Minnesota according to Erb and Benson (2004).

4.2. Factors Affecting Species in the Action Area

4.2.1. Canada lynx

Although not as well documented as for gray wolves (see below) road access to Canada lynx habitat increases the likelihood of human-related adverse effects, simply by increasing the number of humans present in the area. Human-related causes were confirmed for five of 11 lynx deaths in Minnesota among radio- and GPS-collared lynx in an ongoing study [trapping (2), automobile (1), shooting (1), and train (1), Moen et al. 2006:14). Of the remaining six, three died of unknown causes with suspected human involvement (Moen et al. 2006:14). Four additional lynx deaths have been confirmed in Minnesota due to collisions with vehicles on roads since the species was listed as threatened in 2000 (USFWS, Twin Cities Field Office, Bloomington, MN, unpubl. data). These deaths have occurred on a wide variety of roads with average daily traffic volume ranging from 19 to 19400 vehicles per day (USFWS, Twin Cities Field Office, Bloomington, MN, unpubl. data). Since 2000, all lynx road mortality (six animals) documented in Maine has occurred on logging roads (Maine Department of Inland Fisheries and Wildlife, unpubl. data). Most mortality occurred on two-lane haul roads that are open to the public and dominated by non-logging traffic. In Colorado nine lynx deaths due to vehicle collisions have been recorded since 1999 (two other lynx from Colorado were killed in adjacent states, K. Broderdorp et al., USFWS, *in litt.* 2006). As in Minnesota, estimated traffic volumes vary widely among roadkill locations, from 480 to 27,600 vehicles per day.

Lynx populations characteristically fluctuate during approximately 10-year cycles in response to changes in numbers of their primary prey, snowshoe hare. Hare numbers may have begun to decline in Minnesota in 2004 (Erb 2004). In addition, lynx numbers in Minnesota may peak three years after harvest levels in nearby Canadian provinces and lynx harvest in Manitoba and Ontario may have reached a peak during the winter of 2002-2003 (McKelvey et al. 2000). Thus, reduced prey densities and reduced movement of lynx from Canada may soon affect lynx densities in the action area. This would likely be followed, however, by a cyclic increase in about ten years.

4.2.2. Gray wolf

Road access to wolf habitat generally increases the risk of human-related mortality of wolves, due to various causes including shooting, trapping, and automobile (Mech et al. 1988; Fuller 1989; Mech 1989). In a 1980-1986 study of wolves in north-central Minnesota, Fuller (1989) found that vehicle collisions accounted for approximately 11 percent of overall mortality, although other studies in the Midwestern U.S. have found automobile collisions to represent at much as 31 percent of overall mortality (Kohn et al. 2000) and as little as 4 percent (northeastern Minnesota, Mech 1977). The former study (Kohn et al.

2000) was conducted in an area that contained U.S. Highway 53 during an eastward expansion of wolves in Wisconsin.

5. Effects of the Proposed Action

Effects of the action are defined as "the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with the actions, that will be added to the environmental baseline" (50 CFR §402.02). Direct effects are defined as the direct or immediate effects of the action on the species or its habitat. Direct effects result from the agency action, including the effects of interrelated and interdependent actions. Indirect effects are caused by or result from the agency action, are later in time, and are reasonably certain to occur. Indirect effects may occur outside of the immediate footprint of the project area, but would occur within the action area as defined.

5.1. Effects of Interrelated or Interdependent Actions – Mining and Related Actions

Interrelated actions are those that are a part of a larger action and depend on the larger action for their justification. The following actions are interrelated to the issuance of a CWA permit by USACE:

- mining operations in two new mine pits and transport of mining materials to the Minorca Processing Plant;
- new haul roads;
- mine waste stockpile areas;
- dewatering; and,
- actions to reduce or prevent environmental impacts.

The following project description is summarized from the more detailed description contained in (MDNR and USACE 2006). The purpose of the project is to mine taconite ore from the East Reserve to extend the current rate of production at the Minorca taconite production facility until at least 2024. It will include moving mining operations in a phased manner from the nearby Laurentian Mine to the East Reserve. The proposed East Reserve is located between the towns of Biwabik and McKinley in Sections 3, 4, 5, 7, 8, 9, and 10 of T58N, R16W and Section 12 of T58N, R17W (Fig. 1). It is approximately six miles southeast of the Minorca taconite processing facility.

The East Reserve would be developed by using two separate open pits that would cover a combined area of 476 acres. There would be no increase in the amount of pellets produced at the Minorca taconite processing facility. Mining in the East Reserve would be performed using conventional open pit mining methods, including stripping, drilling, blasting, loading and hauling.

To access the taconite ore, overburden, waste rock, and lean taconite would be stripped and stockpiled, first from Pit #1 and then later from Pit #2. Approximately 30,000,000 cubic yards of waste rock/lean taconite and 17,000,000 cubic yards of overburden would be excavated. Overburden, waste rock, and lean taconite would be stockpiled north of the mining area. The total stockpile area would cover approximately 431 acres.

A new, 1.9-mile road spur would be constructed to connect the East Reserve to the existing Laurentian Mine haul road. The road would be approximately 180 feet wide to accommodate the haul large trucks. The side slopes of the roadway would be covered by riprap (stones and rocks) for erosion control. The road would be constructed early in the project to provide access for overburden removal.

Construction of the new haul road to Pit #1 and pre-production stripping of overburden would commence upon completion of environmental review and permitting, predicted to be in early 2007. The haul road would be constructed before beginning overburden removal to provide access for equipment. Taconite ore mining would begin in Pit #1 in 2007. Development of Pit #2 would follow with mining of the two mine pits to continue through 2024. The initiation and completion of mining activities in both new mine pits are subject to change depending on future mining and economic conditions.

Tailing waste generated at the Minorca taconite processing facility would continue to be disposed of in the existing Minorca and Upland tailings basins. Stockpile design and reclamation would be done in accordance with Minnesota Rules 6130 and in the spirit of the Laurentian Vision. The Laurentian Vision is the goal of a voluntary collaboration among business, government, education and community interests to identify long-term uses and alternatives for mining lands of the Mesabi Iron Range. The Vision will provide data and information to mining companies, landowners and other stakeholders, and identify options for the thoughtful conversion of mine lands to suitable uses following mineral depletion. Examples of such uses might include public and private recreational lakes, golf courses, parks and trails, interpretive and educational sites, private industrial parks, planned communities or hunting reserves, wildlife habitat and reforestation.

Areas disturbed by the development of the East Reserve would be reclaimed soon after they become inactive. Stockpiles and roadbeds would be capped with a minimum of two feet of burden material. Grading and sloping would be done just prior to seeding to minimize erosion. All areas would be shaped as required. Fertilization would be done immediately before seeding to expedite vegetation and to minimize erosion. Herbaceous plants would be seeded using a hydro-seeder. Seed mixes would be designed to achieve early stabilization and long-term cover. In all cases, re-vegetation would be done to meet the requirements of Minnesota Rules 6130.4100.

The design of the proposed stockpile areas immediately to the north of the proposed mine pits were planned to utilize previously disturbed areas to the extent practicable. The planned stockpile footprints include areas previously disturbed by existing stockpiles and a former haul road. Much of the proposed East Pit #1 area has been recently logged and is primarily covered by aspen re-growth

5.1.1. Gray Wolf

The proposed action will result in the direct destruction of approximately 4 km^2 of existing habitat, consisting of predominantly upland shrub and forest. Assuming that the territory size of the pack of wolves in this area is equal to 102 km^2, the average territory size found recently for Minnesota wolves by Erb and Benson (2004), this could result in the outright destruction of about 4 percent of the habitat for one pack.

The proposed action will increase the likelihood of direct mortality by vehicle collision by adding a spur road to the existing haul road from the Minorca Processing Facility and by ensuring that traffic will continue on the existing road after the closure of the Laurentian Mine. Wolves are known to use low-use roads [e.g., <10,000 vehicles/month (300/day), Whittington et al. 2004]. Vehicle traffic on the haul road may approach approximately 400 vehicles/day, consisting primarily of haul trucks with a maximum speed of 35 miles per hour (USACE, St. Paul, MN, unpubl. data).

The mine will remove a locally significant wildlife corridor (Emmons & Olivier Resources Inc 2006). Dispersing wolves, however, would still be able to skirt the mine and cross the haul road, which is unlikely to function as a significant barrier for dispersing wolves. For example, Kohn et al. (2000) documented 37 wolf crossings of U.S. Highway 53 in Wisconsin (81 percent by dispersing (i.e., non-resident) wolves), which had a mean traffic volume of 4700 vehicles/day - approximately 15 times the anticipated maximum traffic volume on the haul road. In Spain, wolves "regularly crossed a fenced four-lane highway" with average traffic volume of over 12,000 vehicles/day (Blanco et al. 2005). In the Wisconsin study, wolves were most likely to cross the highway where visibility was relatively high – for example, where there was relatively little shrub cover at eye level – and where adjacent habitat was unfragmented by human-related disturbances, such as buildings, logging, and gravel pits (Frair 1999). Therefore, the extent of landscape fragmentation and other human disturbances along the haul road (e.g., buildings, additional roads, etc.), not traffic volume, is likely to be the predominant factor influencing wolf dispersal across the road.

Although the haul road is unlikely to function as a significant barrier to dispersing wolves if the surrounding habitat is left undisturbed, some wolves may get hit while crossing the road. To estimate the number and frequency of wolf-vehicle collisions as a result of the mine-related traffic on the existing haul road and on the new spur, we will use the results of the Wisconsin study referred to above (Kohn et al. 2000). In that study three wolves were confirmed dead from automobile collisions in a 44-mile length of U.S. Highway 53 during a seven-year study period (Kohn et al. 2000) – i.e., approximately 0.01 wolf/mile/year. Even intensive studies, such as this one, may not document all road-related mortality within the study area (Clarke et al. 1998). In the Wisconsin study (Kohn et al. 2000), the likelihood of detecting wolf-automobile collisions during the winter was probably high because a biologist drove the road every day looking for signs of wolves crossing the road, but the likelihood of detecting incidents during summer was probably low (E. Anderson, University of Wisconsin – Stevens Point, pers. comm. 11/29/06). We will assume that Kohn et al. (2000) documented 50% of the wolf mortalities due to automobile collision on Highway 53 during their study – i.e., that actual mortality was 0.02 wolf/mile/year.

Traffic volume on Highway 53 was 4700 vehicles/day (Kohn et al. 2000), whereas traffic volume on the haul road will likely be no more than about 400 vehicles/day (USACE, unpubl. data). To estimate the post-construction frequency of wolf deaths due to automobile collisions on the haul road we will make the following assumptions:

1. The probability of death due to automobile collision is directly proportional to traffic volume;
2. Traffic volume on the haul road will be 400 vehicles/day;
3. Traffic speeds will approximate those on Highway 53 during the study described above; and,
4. The likelihood of wolf mortality will be directly proportional to wolf density in the vicinity of the haul road, which will approximate those found by Mech (2006) in the central Superior National Forest (i.e., 0.04 wolves/square km).

Based on those assumptions, vehicle traffic on the haul road would result in about 0.08 road-killed wolf/year – about one every 12 years. Traffic speeds will likely be lower on the haul road than on U.S. Highway 53 in the Wisconsin study area; thus, assumption #3 above may result in an overestimate of the potential road-kill on the haul road that will be caused by the proposed action.

The loss of one wolf every 12 years to vehicle collision in the project area would have relatively minimal impacts on the population of wolves in the lower 48 states. Based on current population levels (Erb and Benson 2004; Huntzinger et al. 2005; Wydeven and Wiedenhoeft 2005), this would represent the loss of about 0.03 or 0.02 percent of all wolves in Minnesota or the lower 48 states, respectively, once every twelve years. In a worst-case scenario, a female with dependent pups could be killed, resulting in the potential loss of a litter of pups in addition to the adult. Mean litter size in northeastern Minnesota may be about four pups (Mech 1977). Therefore, the proposed action would cause a 0.2 percent or 0.1 percent decrease in the number of wolves in Minnesota or the lower 48 states (excluding the nonessential experimental populations), respectively, once every 12 years. This is unlikely to result in any appreciable effects on the survival of wolves in Minnesota or in the lower 48 states.

5.1.2. Canada lynx

The proposed action will result in the direct destruction of approximately 4 km^2 of existing habitat, consisting of predominantly upland shrub and forest. Assuming that the territory sizes of any resident female and male lynx are about 68 and 87 km^2, respectively (see above), this could result in the outright destruction of about six and five percent of the habitat for one resident female and male, respectively.

As stated above, lynx are also susceptible to being road-killed. Since 2000, the Service has documented five road-killed lynx in the state on a wide variety of roads. One was killed by an automobile on a gravel road with approximately one-thirtieth the traffic volume of the haul road and a design speed of 30 mph (T. Catton, U.S. Forest Service, Ely, MN, pers. comm. 9/12/06).

As with wolves, numerous assumptions would have to be made to estimate the number of lynx that would likely be hit by vehicles as a result of the mine-related traffic on the existing haul road and on the new spur. For lynx, we do not have a study like that of Kohn et al. (2000) on which to base an estimate of the quantitative impact. Therefore, we will assume that lynx are equally susceptible to being killed by vehicles as are wolves and that the factors considered above for wolves will also determine the likely number of lynx killed, although we will use a different basis for estimating lynx density in the action area.

To estimate lynx density in the vicinity of the haul road, we assumed that there are approximately 1.3 females per male home range, based on weighted mean home ranges of 87 sq. km for males and 68 sq. km for females [studies summarized by Moen et al. (2006)] and assuming continuous and non-overlapping home ranges among males and females, respectively.[2] Therefore, we assume that there are 2.3 lynx per 87 sq. km (i.e., 1 male and 1.3 females in each male home range) – approximately 0.03 lynx/sq. km. Although data are insufficient to estimate lynx density in the action area, this is likely a reasonable estimate. Lynx densities in the southern boreal forest (e.g., Minnesota) are similar to those found in the taiga (the core of lynx range) during times of hare scarcity (i.e., "less than 3 lynx/100 km^2, Mowat et al. 2000). For example, a well studied population in Washington maintained a density of 0.02-0.026/km^2 during a 7-year study period (Aubry et al. 2000).

[2] We could have used the home ranges found thus far for lynx in Minnesota, but the sample size is relatively low (i.e., two females – Moen et al. 2006).

We would predict greater densities in the action area if we assumed some degree of overlap among female home ranges, as has been demonstrated (Mech 1980; Carbyn and Patriquin 1983). It is unclear, however, what degree of overlap is likely to occur in the action area and even in regions where some lynx home ranges overlap there are likely some areas not included within any lynx's home range (i.e., unoccupied habitat). Therefore, our assumption of continuous home ranges would somewhat offset the negative influence on the predicted density resulting from our assumption of non-overlapping home ranges.

Based on the above assumptions regarding traffic volume, susceptibility to vehicle collisions, traffic speeds, lynx densities, and current likelihood of vehicle collisions, we estimate that the proposed action will result in about one lynx getting hit and killed by a vehicle on the haul road every 16 years. The likely frequency of lynx-automobile collisions may be less than for wolves due to the lower predicted densities of lynx in the vicinity of the haul road (see above). In addition, lynx populations fluctuate markedly during approximately 10 year cycles, whereas wolf densities will likely be relatively stable. Therefore, the probability of lynx getting hit by vehicles on the haul road will likely vary in proportion to lynx density throughout the population cycle.

Data are currently insufficient to accurately estimate lynx densities in Minnesota, but the assumptions used above to arrive at an estimate of one dead lynx every 16 years also allow us to estimate the proportional impact to the lynx population. To estimate lynx density at $0.03/km^2$ in the action area we assumed that lynx home ranges were continuous and non-overlapping within sexes – that is, female home ranges did not overlap with other female home ranges and were continuous across the landscape – we assumed the same for males. Lynx Analysis Units (LAU) and the Boundary Waters Lynx Refugium (BWLR) cover approximately 12,700 km^2 and represent the approximate area occupied by lynx in and around the Superior National Forest. For the purposes of this analysis, we will assume that this is the approximate area occupied by lynx in Minnesota. There are areas within LAUs that are unsuitable for lynx, but lynx also occur in Minnesota beyond the area contained within LAUs and the BWLR (including the action area), therefore, this may be a fair approximation of total lynx range in Minnesota. If lynx occur throughout the area contained within LAUs and the BWLR at a density of $0.03/km^2$, then there are approximately 381 lynx in this area. If one lynx is killed every 16 years, this would represent an approximate loss of 0.3 percent of the lynx population, once every 16 years. As stated above, lynx abundance likely varies greatly over an approximately 10-year cycle. Therefore, the loss of one lynx would affect have a greater proportional effect during low phases of they cycle. Low lynx densities during this period, however, would also proportionately lower the likelihood of a lynx getting hit by a vehicle on the haul road.

5.2. Cumulative Effects

Cumulative effects include the effects of future State, tribal, local or private actions that are reasonably certain to occur in the action area considered in this Opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act.

Roads, pit, and stockpile areas will be reclaimed upon completion of mining activities in the area, but specific reclamation plans are not yet developed. Basic reclamation requirements are summarized above, but the specific use of the reclaimed areas (e.g., forest, golf course, etc.) has not been ascertained.

The proposed mine is one of several mining projects pending in the Mesabi Iron Range, but each will require separate consultation pursuant to section 7 of the Act.

6. Conclusion

After reviewing the current status of gray wolves and Canada lynx, the environmental baseline for the action area, the effects of the proposed issuance of a Clean Water Act Section 404 permit to Mittal Steel to develop a new open-pit mine (East Reserve) between the towns of Biwabik and McKinley, St. Louis, County, Minnesota and the cumulative effects, it is the Service's Opinion that the action, as proposed, is not likely to jeopardize the continued existence of the gray wolf in Minnesota or in the lower 48 states or the Contiguous United States Distinct Population of Canada lynx.

As detailed above, the proposed action would cause an approximate 0.2 percent or 0.1 percent decrease in the number of wolves in Minnesota or the lower 48 states (excluding the nonessential experimental populations), respectively, once every 12 years. This is unlikely to result in any appreciable effects on the survival or recovery of wolves in Minnesota or in the lower 48 states. In addition, the project may result in an approximate loss of 0.3 percent of the lynx population in Minnesota, once every 16 years. Populations of lynx in the contiguous United States also occur in portions of Colorado, Idaho, Maine, Montana, and Washington. Therefore, the estimated proportional impacts to Canada lynx in the Contiguous United States would be less than that anticipated for the species in Minnesota alone. This level of impact would not result in an appreciable effect on the survival and recovery of Canada lynx in the Contiguous United States.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement.

The measures described below are non-discretionary, and must be undertaken by the USACE so that they become binding conditions of any grant or permit issued to any applicant, as appropriate, for the exemption in section 7(o)(2) to apply. USACE has a continuing duty to regulate the activity covered by the incidental take statement. If USACE (1) fails to assume and implement the terms and conditions or (2) fails to require any applicant to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, USACE must report the progress of the action and its impact on the species to the Service as specified in the incidental take statement. [50 CFR §402.14(i)(3)]

1. Amount or Extent of Take Anticipated

In the attached biological opinion, we described the anticipated incidental take in terms of one wolf and one lynx killed by a vehicle once every 12 and 16 years, respectively, in the action area.

2. Effect of the Take

In the attached biological opinion, we concluded that the anticipated incidental take would not jeopardize the continued existence of gray wolves or of the Contiguous United States Distinct Population Segment of Canada Lynx.

3. Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measures (RPM) are necessary and appropriate to minimize take of gray wolves and Canada lynx.

1. Implement measures to reduce the likelihood of vehicle collisions with wolves and lynx (see Part 4 Terms and Conditions, below).

4. Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the USACE must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

RPM 1: Implement measures to reduce the likelihood of vehicle collisions with wolves and lynx.

Term and Condition #1: An increase in vehicle traffic on the haul road to approximately 600 vehicle trips per day may be significant enough to result in increased take of wolves and/or lynx. Therefore, implement measures to monitor traffic volume and ensure that it does not exceed an average of 600 vehicle trips/day (e.g., 300 round-trips per day between Minorca and the East Reserve mine area) during any calendar year.

Term and Condition #2: Promptly remove any deer or moose killed by vehicles on the haul road to limit the likelihood of lynx or wolves feeding on carrion on or near the road.

The Service believes that no more than one gray wolf and one Canada lynx will be incidentally taken once every twelve and sixteen years, respectively as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent measures.

5. Reporting Requirements

Any vehicle collisions with gray wolves or lynx must be reported within 72 hours to U.S. Fish and Wildlife Service, Twin Cities Field Office, Bloomington, Minnesota (612/725-3548). These reports shall include all known information regarding the incident, including the species involved, date of incident, fate of the animal (e.g., dead), location of the carcass, geographic coordinates of the accident location, sex of the animal, and approximate age (i.e., adult, juvenile, yearling). To ensure that any incident will be reported, each employee who will drive on the haul road shall be provided information to allow them to identify Canada lynx and gray wolf. This information shall be retained in all vehicles that will be driven on the haul road. Coordinate with the Service to develop this information. The information on the two following websites could be used for this purpose:

- lynx - http://www.nrri.umn.edu/lynx/information/bobcat.html (see Appendix 1)

- wolf - http://www.wolf.org/wolves/pdf/W&H_was_that_a_wolf.pdf (see Appendix 2)

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act, directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation Recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery programs, or to develop information.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their or their habitats, the Service requests notification of the implementation of any conservation recommendations.

1. The Service recommends that the Corps place a condition on its Clean Water Act permit to require the company to perform an economic and technical feasibility study on the installation of an arched, bottomless culvert, in lieu of a small corrugated culvert pipe, to serve as a wildlife crossing on the new haul road spur. The location of this crossing would be approximately midway along the proposed new haul road spur, where it crosses an unnamed tributary to the Pike River. The bottomless culvert should be no less than 24 feet in width, with four foot vertical side walls and appropriate arch radius for required strength, and should run the entire width of the base of the haul road at this location. To determine economic feasibility, the study should compare the cost of the arched, bottomless culvert installation to the overall cost of the construction of the new haul road spur. If the study shows that the installation is both economically and technically feasible, the Corps should require, as a condition of its Clean Water Act permit, installation of the arched, bottomless culvert within three years of the onset of project implementation.

2. Report any sightings of Canada lynx to the Service at (612) 725-3548. If possible, provide the date and location (geographic coordinates if available).

3. When developing reclamation plans, coordinate with the Service to identify opportunities to provide high-quality lynx habitat. Restore natural plant communities wherever practicable.

4. Remove and reclaim any roads as soon as they become unnecessary for ongoing or pending mine activities.

5. Delay any land clearing until August to minimize the likelihood of impacts to denning lynx or wolves.

REINITIATION – CLOSING STATEMENT

This concludes formal consultation for the potential effects of the proposed issuance of a Clean Water Act Section 404 permit to Mittal Steel to develop a new open-pit mine (East Reserve) between the towns of Biwabik and McKinley, St. Louis, County, Minnesota on the gray wolf and on the Contiguous United States Distinct Population Segment of Canada Lynx. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this Opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

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Appendix 1. How to identify Canada lynx.

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Lynx or Bobcat?

The following information is adapted from the website, http://oden.nrri.umn.edu/lynx/information/bobcat.html.

Canada lynx (*Lynx canadensis*) and bobcats (*Lynx rufus*) are medium-sized (2-3 times larger than a large house cat, smaller than a mountain lion) cats that are similar in appearance. There are several physical characteristics to distinguish between Canada lynx and bobcat:

The black tail, ear tufts, and large feet characteristic of Canada lynx are shown clearly in the photo above.

- Tail: A lynx's tail has a black tip all around, with the appearance of being dipped in a bottle of ink. A bobcat's tail is striped with black bands towards the end and has a black tip.

- Ears: Lynx have longer ear tufts than bobcats.

- Feet: Lynx have much larger feet than bobcats.

While not a physical characteristic, a lynx is more likely to provide humans with a "good" view, often remaining in an area for a period of time while people watch it. Bobcats are more secretive and elusive than lynx.

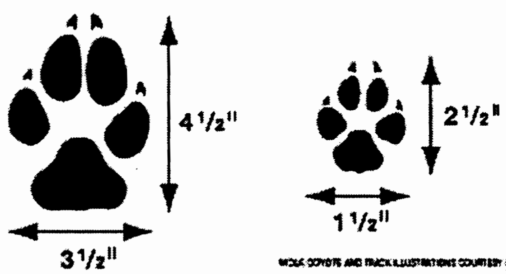
Appendix 2. Identifying wolves.

Adapted from theInternational Wolf Center website, http://www.wolf.org/wolves/pdf/W&H_was_that_a_wolf.pdf

Comparison of wolf and coyote:

	GRAY WOLVES (adult)	COYOTES (adult)
LENGTH:	4.5 to 6.5 feet	3.6 to 4.4 feet
HEIGHT (at the shoulder):	26 to 32 inches	16 to 20 inches
WEIGHT:	60 to 115 lbs	20 to 50 lbs
PELAGE:	buff tans grizzled with gray and black, but can also be black or white	gray or reddish brown with rusty legs, feet and ears, and whitish throat and belly
EARS:	rounded, relatively short	pointed, relatively long
MUZZLE:	large and blocky	petite and pointed

TRACK SIZE:



DOG TRACK:	Variable depending on breed. Only a few breeds of dogs leave tracks longer than 4 inches (Great Danes, St. Bernards, some bloodhounds).

For more information visit the International Wolf Center's Web site at www.wolf.org

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